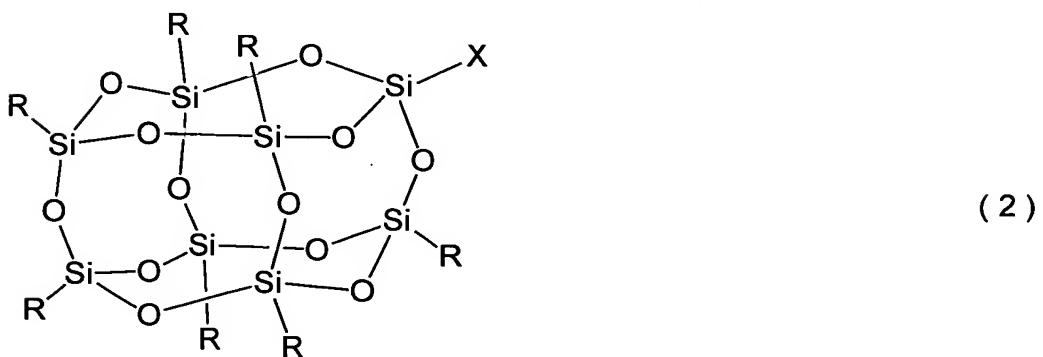
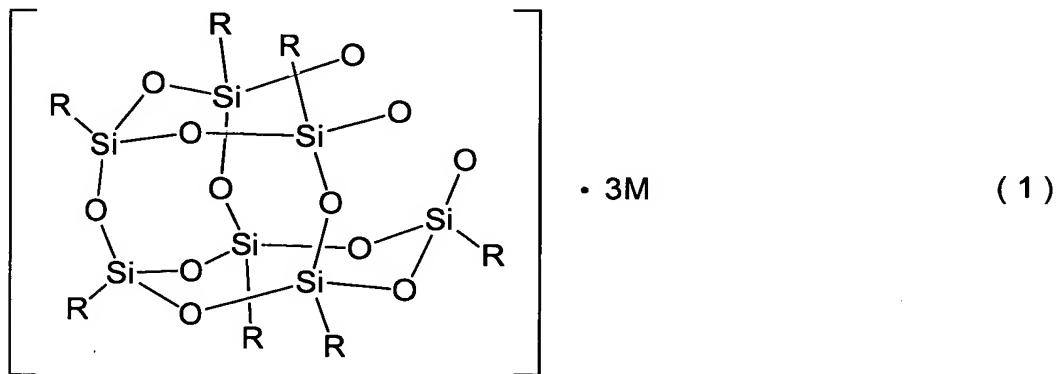


CLAIMS

1. A production process for a silsesquioxane derivative represented by Formula (2), characterized by
5 using a silicon compound represented by Formula (1):



wherein in Formula (1), each of R's is a group selected independently from hydrogen, the group of alkyls having 1
10 to 45 carbon atoms, the group of substituted or non-
substituted aryls and the group of substituted or non-
substituted arylalkyls; in the alkyl having 1 to 45
carbon atoms, optional hydrogen may be replaced by
fluorine, and optional -CH₂- may be replaced by -O-, -

CH=CH-, cycloalkylene or cycloalkenylene; in alkylene of the substituted or non-substituted arylalkyl, optional hydrogen may be replaced by fluorine, and optional -CH₂- may be replaced by -O-, -CH=CH- or cycloalkylene; and M 5 is a monovalent alkaline metal atom;

in Formula (2), R has the same meaning as that of R in Formula (1); and X is hydrogen, chlorine, a functional group or a group having a functional group; provided that X is not any of a group having a hydroxy 10 group which is not bonded directly to Si, a group having alkanoyloxy, a group having halogenated sulfonyl and a group having an α -haloester group.

2. The production process according to claim 1, 15 wherein each of R's in Formula (1) is a group selected independently from hydrogen, the group of alkyls in which the number of carbon atoms is 1 to 20, optional hydrogen may be replaced by fluorine and optional -CH₂- may be replaced by -O- or cycloalkylene, the group of alkenyls 20 in which the number of carbon atoms is 2 to 20, optional hydrogen may be replaced by fluorine and optional -CH₂- may be replaced by -O- or cycloalkylene, the group of alkyls in which the number of carbon atoms is 1 to 10 and at least one -CH₂- is replaced by cycloalkenylene, the 25 group of phenyls in which optional hydrogen on the benzene ring may be replaced by halogen or alkyl having 1 to 10 carbon atoms, the group of phenylalkyls in which

optional hydrogen on the benzene ring may be replaced by halogen or alkyl having 1 to 10 carbon atoms, and naphthyl; in the alkyl having 1 to 10 carbon atoms which is a substituent on the benzene ring, optional hydrogen 5 may be replaced by fluorine, and optional $-\text{CH}_2-$ may be replaced by $-\text{O}-$, $-\text{CH}=\text{CH}-$, cycloalkylene or phenylene; and in alkylene of the phenylalkyl, the number of carbon atoms is 1 to 12, optional hydrogen may be replaced by fluorine, and optional $-\text{CH}_2-$ may be replaced by $-\text{O}-$, $-\text{CH}=\text{CH}-$ 10 or cycloalkylene.

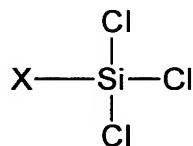
3. The production process according to claim 1, wherein each of R's in Formula (1) is a group selected independently from the group of alkyls in which the 15 number of carbon atoms is 1 to 10, optional hydrogen may be replaced by fluorine and optional $-\text{CH}_2-$ may be replaced by $-\text{O}-$ or cycloalkylene, the group of phenyls in which optional hydrogen on the benzene ring may be replaced by halogen, methyl or methoxy, the group of 20 phenylalkyls in which optional hydrogen on the benzene ring may be replaced by fluorine, alkyl having 1 to 4 carbon atoms, vinyl or methoxy, and naphthyl; and in alkylene of the phenylalkyl, the number of carbon atoms is 1 to 8, and optional $-\text{CH}_2-$ may be replaced by $-\text{O}-$, $-\text{CH}=\text{CH}-$ 25 or cycloalkylene.

4. The production process according to claim 1,

wherein all of R's in Formula (1) are the same group selected from the group of alkyls in which the number of carbon atoms is 1 to 10, optional hydrogen may be replaced by fluorine and optional -CH₂- may be replaced 5 by -O- or cycloalkylene, the group of phenyls in which optional hydrogen on the benzene ring may be replaced by halogen, methyl or methoxy, the group of phenylalkyls in which optional hydrogen on the benzene ring may be replaced by fluorine, alkyl having 1 to 4 carbon atoms, 10 vinyl or methoxy, and naphthyl; and in alkylene of the phenylalkyl, the number of carbon atoms is 1 to 8, and optional -CH₂- may be replaced by -O-, -CH=CH- or cycloalkylene.

15 5. The production process according to any one of claims 1 to 4, wherein M in Formula (1) defined in claim 1 is Na.

20 6. The production process according to any one of claims 1 to 4, wherein M in Formula (1) defined in claim 1 is Na, and a step for reacting the silicon compound represented by Formula (1) with a silicon compound represented by Formula (3) is included therein:



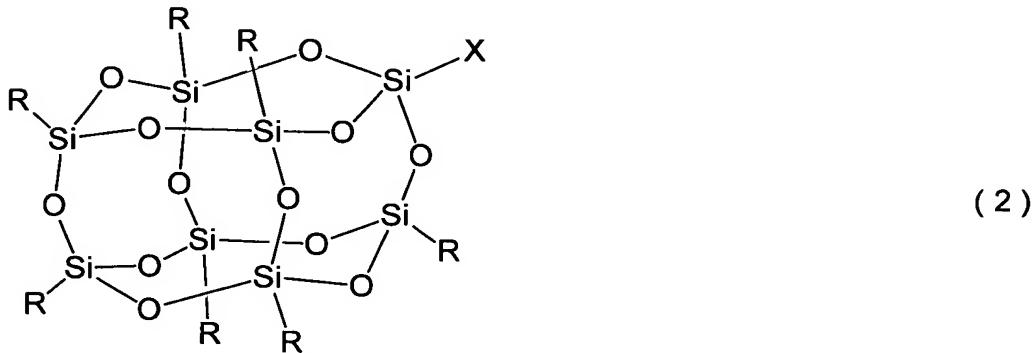
(3)

wherein X has the same meaning as that of X in Formula (2) defined claim 1.

7. The production process according to claim 6,
5 wherein X is hydrogen, chlorine, alkenyl or a group having any of halogen, alkenyl, cycloalkenyl, cyano, alkoxy, phenoxy, acryloyloxy, methacryloyloxy and glycidyloxy;
provided that a group having halogenated sulfonyl and a
10 group having an α -haloester group are not included in the group having halogen.

8. A silsesquioxane derivative represented by Formula (2):

15



wherein each of R's is a group selected independently from the group of alkyls in which the number of carbon atoms is 1 to 20, at least one hydrogen is replaced by fluorine and optional $-\text{CH}_2-$ may be replaced by $-\text{O}-$, the
20 group of phenyls in which optional hydrogen on the benzene ring may be replaced by halogen or alkyl having 1

to 10 carbon atoms, the group of phenylalkyls in which optional hydrogen on the benzene ring may be replaced by halogen or alkyl having 1 to 10 carbon atoms, and naphthyl; in the alkyl having 1 to 10 carbon atoms which 5 is a substituent on the benzene ring, optional hydrogen may be replaced by fluorine, and optional $-\text{CH}_2-$ may be replaced by $-\text{O}-$, $-\text{CH}=\text{CH}-$, cycloalkylene or phenylene; in alkylene of the phenylalkyl, the number of carbon atoms is 1 to 12, optional hydrogen may be replaced by fluorine, 10 and optional $-\text{CH}_2-$ may be replaced by $-\text{O}-$, $-\text{CH}=\text{CH}-$ or cycloalkylene; and X is hydrogen, chlorine, a functional group or a group having a functional group; provided that X is not any of a group having a hydroxy group which is not bonded directly to Si, a group having 15 alkanoyloxy, a group having halogenated sulfonyl and a group having an α -haloester group.

9. The silsesquioxane derivative according to claim 8, wherein each of R's in Formula (2) is a group 20 selected independently from the group of alkyls in which the number of carbon atoms is 1 to 10, at least one hydrogen is replaced by fluorine and optional $-\text{CH}_2-$ may be replaced by $-\text{O}-$, the group of phenyls in which optional hydrogen on the benzene ring may be replaced by halogen, methyl or methoxy, the group of phenylalkyls in 25 which optional hydrogen on the benzene ring may be replaced by fluorine, alkyl having 1 to 4 carbon atoms,

vinyl or methoxy, and naphthyl; and in alkylene of the phenylalkyl, the number of carbon atoms is 1 to 8, and optional $-\text{CH}_2-$ may be replaced by $-\text{O}-$, $-\text{CH}=\text{CH}-$ or cycloalkylene.

5

10. The silsesquioxane derivative according to claim 8, wherein all of R's are the same group selected from the group of alkyls in which the number of carbon atoms is 1 to 10, at least one hydrogen is replaced by fluorine and optional $-\text{CH}_2-$ may be replaced by $-\text{O}-$, the group of phenyls in which optional hydrogen on the benzene ring may be replaced by halogen, methyl or methoxy, the group of phenylalkyls in which optional hydrogen on the benzene ring may be replaced by fluorine, 15 alkyl having 1 to 4 carbon atoms, vinyl or methoxy, and naphthyl; and in alkylene of the phenylalkyl, the number of carbon atoms is 1 to 8, and optional $-\text{CH}_2-$ may be replaced by $-\text{O}-$, $-\text{CH}=\text{CH}-$ or cycloalkylene.

20 11. The silsesquioxane derivative according to claim 8, wherein all of R's are the same alkyl in which the number of carbon atoms is 1 to 10, at least one hydrogen is replaced by fluorine, and one $-\text{CH}_2-$ may be replaced by $-\text{O}-$.

25

12. The silsesquioxane derivative according to claim 8, wherein all of R's in Formula (2) are phenyl.

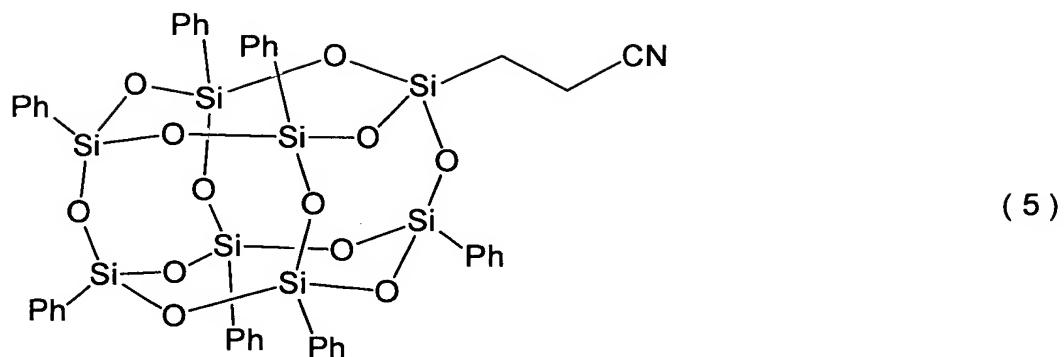
13. The silsesquioxane derivative according to
claim 8, wherein all of R's in Formula (2) are
trifluoropropyl.

5

14. The silsesquioxane derivative according to
claim 8, wherein all of R's in Formula (2) are
tridecafluoro-1,1,2,2-tetrahydrooctyl.

10 15. The silsesquioxane derivative according to any
one of claims 8 to 14, wherein X in Formula (2) defined
in claim 8 is hydrogen, chlorine, a hydroxy group,
alkenyl, or a group having any of halogen, alkoxy,
phenoxy, polyalkyleneoxy, -COOH, 2-oxapropane-1,3-dioyl,
15 alkoxycarbonyl, alkenyloxycarbonyl, oxiranyl, 3,4-
epoxycyclohexyl, oxetanyl, oxetanylene, -NH-, -NH₂, -CN,
-NCO, alkenyl, alkynyl, cycloalkenyl, acryloyloxy,
methacryloyloxy, -SH and -PH₂,
provided that X is not any of a group having a hydroxy
20 group which is not bonded directly to Si, a group having
alkanoyloxy, a group having halogenated sulfonyl and a
group having an α -haloester group.

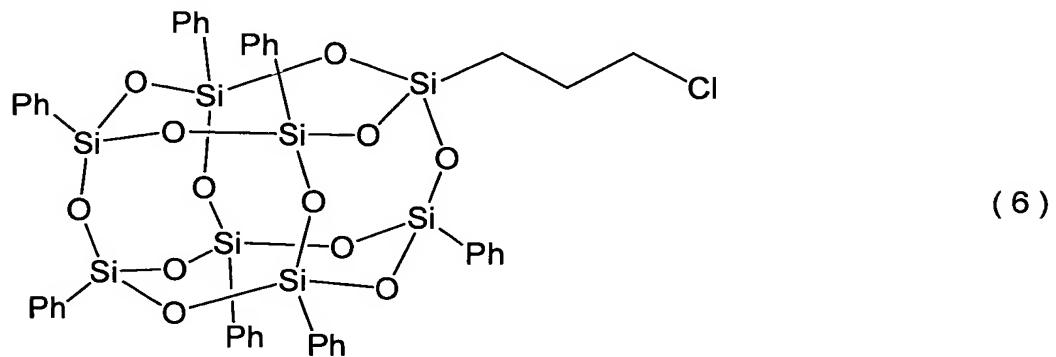
16. A silsesquioxane derivative represented by
25 Formula (5):



wherein Ph is phenyl.

17. A silsesquioxane derivative represented by

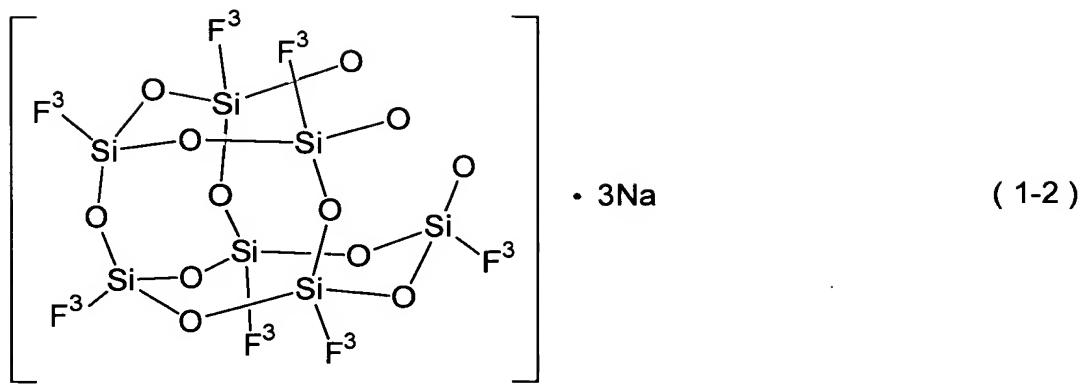
5 Formula (6) :



wherein Ph is phenyl.

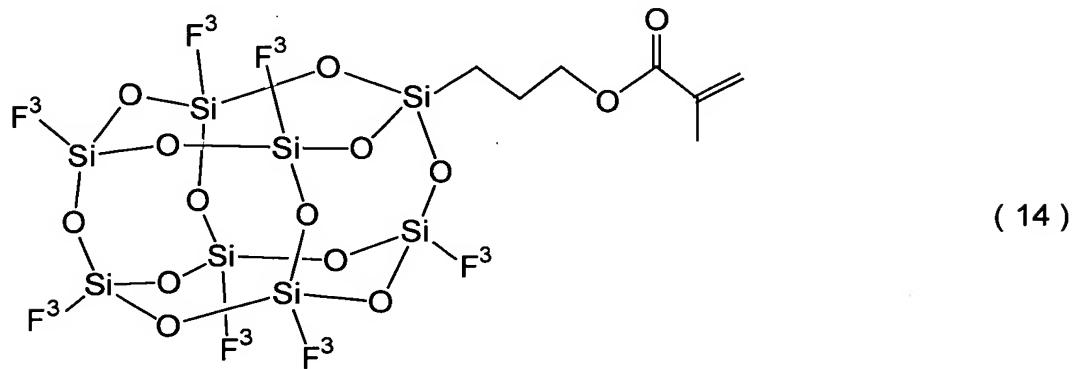
18. A silsesquioxane derivative represented by

10 Formula (1-2) :



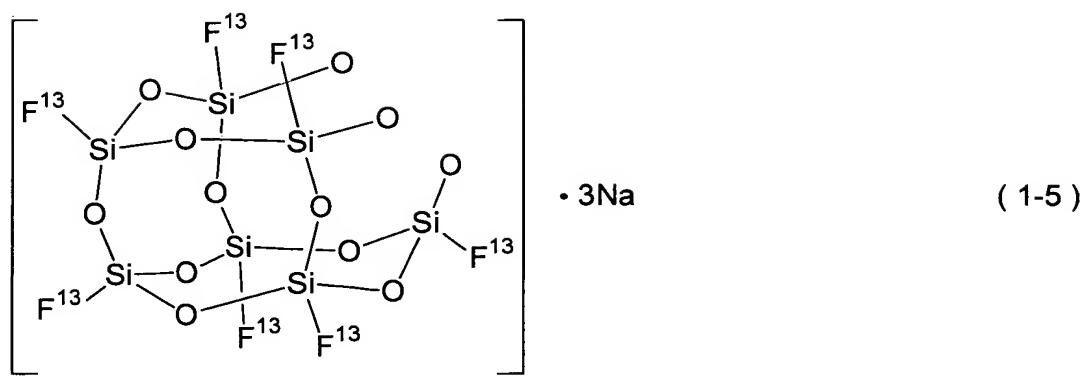
wherein F^3 is $-\text{CH}_2\text{CH}_2\text{CF}_3$.

19. A silsesquioxane derivative represented by
5 Formula (14) :



wherein F^3 is $-\text{CH}_2\text{CH}_2\text{CF}_3$.

20. A silsesquioxane derivative represented by
10 Formula (1-5) :



wherein F^{13} is $-\text{CH}_2\text{CH}_2(\text{CF}_2)_5\text{CF}_3$.